



Patent  
Attorney Docket No. 024444-917

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

Håkan ERICKSSON et al.

Application No. 09/838,305

Filed: April 20, 2001

For: CUTTING TOOL SYSTEM AND  
MECHANISM FOR ACCURATELY  
POSITIONING A CUTTING EDGE

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) Group Art Unit: 3722  
)  
) Examiner: Brian D. Walsh  
)  
) Confirmation No. 1853  
)  
) Appeal No.

**BRIEF FOR APPELLANT**

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Sir:

This appeal is from the decision of the Primary Examiner dated (Paper No. 9), which are reproduced as an Exhibit to this brief.

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The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. A copy of this page and the signature page are submitted in duplicate.

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Applicant hereby appeals the final rejection of claims 1, 3, 6-9, 11-20, and 22-25. The final rejection of claim 21 is not being appealed.

I. Real Party in Interest

The real party in interest is Sandvik Aktiebolag, the assignee of record.

II. Related Appeals and Interferences

None.

III. Status of Claims

Claims 1, 3, 6-9 and 11-25 stand rejected.

Claims 2, 4, 5 and 10 have been objected to as depending from a rejected claim.

Claims 26 and 27 have been allowed.

IV. Status of Amendments

All amendments have been considered. No amendments have been denied entry.

V. Summary of the Invention

The present invention relates to a cutting tool system in which a cutting tool is clamped within an aperture of a clamping device. For example, attention is directed to the embodiment of the invention disclosed in connection with Fig. 4 in which a clamping device includes a clamping block 15 having an aperture 23, e.g. a cylindrical aperture defined by a cylindrical aperture surface. A cutting tool 1 includes a front portion at which a cutting edge is disposed (i.e., a cutting edge defined by an unnumbered cutting insert which corresponds to the prior art insert 5 shown in Figs. 1-3). The cutting tool 1 also includes a shaft 3 which is fixed in the aperture 23 by a tool-securing clamping force created by clamp actuators (i.e., screws 65). The clamping force is releasable (by loosening the clamp actuators 65)

to enable the shaft 3 to be displaced relative to the clamping device to a desired position for properly orienting the cutting edge. The shaft 3 includes an outer envelope surface which faces the aperture surface.

In order to provide an operator with an indication that the shaft is in a desired position within the clamping device, a spring-loaded element 33 (Figs. 6-7) or 33A (Fig. 8) projects from either the envelope surface or the aperture surface (the depicted embodiments show the element as projecting from the aperture surface) and yieldably engages a recess formed in the other of the envelope surface and the aperture surface. The spring-loaded element is biased into a recess 21 by a coil spring 31 (Fig. 7), or by an elastic cap 51 (Fig. 8), to produce a sudden increase in a force necessary to displace the tool from the desired position.

Importantly, however, the spring-loaded element does not function to secure the tool within the clamping device, but merely to produce a "feel" to an operator that the tool has reached its next position of adjustment. The actual tool-securing function is performed by the clamp actuators 65 which act on the clamping block to cause the clamping block to apply to a tool-securing clamping force to the shaft independently of the spring-loaded element 33.

#### VI. The Issues

At issue is whether claims 1, 3, 6-7, 11, 13-15, 17 and 22-25 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Carroll (U.S. Patent 5,624,214) in view of Misuraca (U.S. Patent 2,711,664).

Also at issue is whether claims 8-9 and 12 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Carroll in view of Misuraca and Davison (U.S. Patent 4,710,075).

Also of issue is whether claims 16 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Carroll in view of Misuraca in view of Suguira et al. (U.S. Patent 6,379,089).

Another issue is whether claims 18-20 are unpatentable under 35 U.S.C. § 103(a) as obvious over Carroll in view of Misuraca and Suzuki (U.S. Patent 4,813,810).

A further issue is whether claims 22-24 are unpatentable under 35 U.S.C. § 103(a) as obvious over Martindell (U.S. Patent 4,92,073) in view of Misuraca.

Note: The final rejection of independent claim 21 is not being appealed.

VII. Grouping of Claims

Claims 1, 3, 6-9, 11-15-20 and 22-24 stand or fall together.

Claim 25 is patentable independently of the remaining claims.

VIII. Argument

Independent Claim 1

Claim 1 recites, *inter alia*, a spring-loaded element yieldably engaging a recess in a shaft, in combination with a clamp actuator arranged to act on a clamping block to apply a tool-securing clamping force to the shaft.

In the final rejection it is deemed obvious to provide Carroll's device with Misuraca's clamp.

In Carroll, a cutting tool 14 has a shank 13 which is insertable into an aperture of a sleeve 12. Two spring-biased collets 18 disposed on the sleeve function respectively to secure a drive shaft 11 and the tool shank 13 to the sleeve 12. That is, each collet acts to press a detent ball 32 into a detent rest (recess) of the shaft 11 (or shank 13), e.g., see the detent rests 72a, b of the shaft 11 shown in Figs. 7-9. The balls 32 create a drive coupling to enable the sleeve 12 to be driven by the shaft 11 and, in turn, to drive the shank 13. As observed in column 3, lines 24-28, the spring 51 pushes the collet sleeve laterally to press the ball 32 into the detent rest and holds it securely therein.

Misuraca discloses a block A having spaced furcations between which a tool bar holder H can be positioned. By tightening the bolts D, the holder H will be clamped by the functions and firmly secured in position.

Regarding the proposed combination of Carroll and Misuraca, it is submitted that an artisan would not find it obvious to make such a combination, because it would be redundant. The collet/ball coupling 18, 32 of Carroll functions to securely lock the shaft 13 within the collar 18. The collar 18 blocks escape of the detent balls 32 and thus prevents dislodgment of the shaft 13. There is not need for the further provision of a separate clamp, and an artisan would not be motivated to provide same.

In the presently claimed invention, the spring-loaded element functions merely to create a "feel" to the operator and thus provide an indication of the position of the cutting tool. The spring-loaded element is not capable of securing the tool in place, i.e., it is not redundant to the clamping force. Neither Carroll nor Misuraca discloses redundant securing mechanisms nor suggests that redundancy is necessary.

Furthermore, even if the proposed combination were made, it is submitted that the ball 32 of Carroll does not constitute a spring-loaded element as recited in claim 1. The ball 32 of Carroll is not spring-loaded. The collet 18 is spring-loaded, but the spring force is not transmitted to the ball. Rather, when the collet is in a ball-blocking position, the ball is firmly locked in the recess; the ball does not "yieldably" engage the recess as in the case of a spring-loaded element.

Accordingly, it is submitted that it would not have been obvious to combine Carroll and Misuraca as proposed in the final rejection, and that the claimed invention would not result even if the combination were made.

Independent Claim 22:

Independent claim 22 recites a tool-clamping device comprising a block having an aperture, a spring-loaded element therein, and a clamping actuator. For reasons noted above, Carroll does not disclose a spring-loaded element that projects into an aperture, or a clamping actuator, and there is no motivation by Misuraca to provide Carroll with either of those features.

Claim 22 has also been rejected as obvious over Martindell in view of Misuraca. It is submitted that it would not have been obvious to provide Misuraca's

clamping feature in Martindell's tool. The intention of Martindell is to provide a "quick release" chuck for holding a power bit (see the abstract, col. 3, line 2; and lines 36-37 of the description). The quick-release function is described at column 8, lines 12+, wherein the bit 100 (Fig. 1, 5c) is pulled to the left while the sleeve 60 is slid to the right. Not only is there no need for a separate clamping force in Martindell's tool, such a separate clamping force would completely eliminate the "quick" release function of Martindell's coupling. Thus, there is no motivation whatsoever for making the proposed combination.

Independent Claim 25:

Claim 25, which has been rejected over Carroll in view of Martindell, recites a spring-loaded device engaging a recess. For reasons pointed out earlier, Carroll's device 32 is not spring loaded.

Claim 25 also recites that the shaft is held by a clamping force and that when the clamping force is released, the shaft is rotatable about a longitudinal axis of the shaft while opposed by the spring-loaded device. Even if Carroll's apparatus were supplemented by a clamping force, the release of the clamping force would not enable the shaft 13 to be rotated for two reasons, i.e., firstly because Carroll's shaft 13 is not circular in cross section, and secondly, because the ball 32 would remain securely held in the detent rest 72 of the shaft by the collet, thereby preventing rotation of the shaft.

IX. Conclusion

For the reasons explained above, the final rejection of claims 1, 3, 6-9, 11-20 and 22-25 should be overturned.

Respectfully submitted,

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